

# EUROPEAN PATENT OFFICE

## Patent Abstracts of Japan

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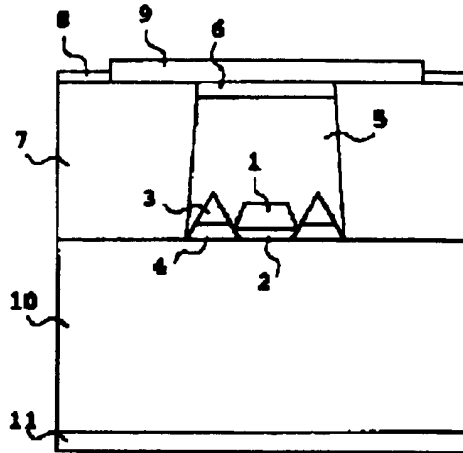
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TITLE : POLARIZATION INDEPENDENT  
OPTICAL ELEMENT AND ITS  
PRODUCTION



**ABSTRACT :** **PROBLEM TO BE SOLVED:** To provide a polarization independent optical element having high efficiency and high gain and a process for producing the optical element.

**SOLUTION:** An active layer 1 which consists of a square or trapezoidal shape in sectional shape and current element layers 3, 4 of a triangular prism shape which are arranged on both sides of the active layer 1 and have (111)B as slants are formed on a substrate 10. The element has two gate switches which are connected in series or parallel. The first gate switch consists of the active layer having the length in the direction horizontal to the substrate larger than that of the second gate switch and the higher TE gain. The second gate switch may be composed of the active layer having the length in the direction perpendicular to the substrate larger than that of the first gate switch and the higher TE gain.

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